[0049] What is claimed is:

CLAIMS

1. A method for manufacturing data storage media comprising:

irradiating at least a portion of an organic polymer comprising a resorcinol arylate polyester with a UV beam having a wavelength of about 290 to about 400 nanometers so as to impart an energy of about 1 to about 20 milliwatt/square centimeter to the irradiated portion of the organic polymer.

2. The method of Claim 1, wherein the resorcinol arylate polyester has the structure of formula (XII)

$$\begin{array}{c|c} O & O & O \\ C & C & C & O \\ \hline \end{array}$$

$$\begin{array}{c|c} O & O & O \\ \hline C & C & O \\ \hline \end{array}$$

$$\begin{array}{c|c} O & O & O \\ \hline \end{array}$$

$$\begin{array}{c|c} R_n & O & O \\ \hline \end{array}$$

$$(XII)$$

wherein R is at least one of C_{1-12} alkyl or halogen, n is 0 to 3, and m is at least about 8.

- 3. The method of Claim 2, wherein m is about 10 and about 300.
- 4. The method of Claim 1, wherein the resorcinol arylate polyester has the structure of formula (XIII)

$$\begin{array}{c|c}
O & O & O \\
\hline
C & O & O \\
\hline
C & O & O \\
\hline
R_n & O \\
\hline
\end{array}$$
(XIII)

wherein R is at least one of C_{1-12} alkyl or halogen, n is 0 to 3, and m is at least about 8.

5. The method of Claim 4, wherein m is about 10 and about 300.

6. The method of Claim 1, wherein the organic polymer has the structure of formula (XIV)

$$\begin{array}{c|c}
O - R^2 - C - O_{m} & (R^1)_{p} & O \\
O - C & C & C
\end{array}$$
(XIV)

wherein each R^1 is independently halogen or C_{1-12} alkyl, m is at least 1, p is about 0 to about 3, each R^2 is independently a divalent organic radical, and n is at least about 4.

- 7. The method of Claim 6, wherein m is about 2 to about 200 and n is about 30 to about 150.
- 8. The method of Claim 1, wherein the organic polymer is further blended with a polycarbonate.
- 9. The method of Claim 1, wherein the organic polymer is irradiated for a time period of about 30 seconds to about 5 minutes.
- 10. The method of Claim 1, wherein the organic polymer is in the form of a film having a thickness of about 1 to about 1,000 micrometers.
 - 11. The method of Claim 10, wherein the film comprises a single layer.
 - 12. The method of Claim 10, wherein the film is multilayered.
- 13. The method of Claim 1, wherein the irradiation promotes a Fries molecular rearrangement in the organic polymer.
- 14. The method of Claim 1, wherein the irradiation produces a difference in refractive index of about 0.0001 to about 0.1 between an irradiated portion and an unirradiated portion of the organic polymer.
- 15. The method of Claim 1, wherein the irradiating produces a pattern in the organic polymer.

- 16. The method of Claim 1, wherein the organic polymer has a shrinkage of less than or equal to about 5 volume percent when compared with the volume of the organic polymer prior to the irradiation.
- 17. The method of Claim 1, wherein the organic polymer undergoes a shrinkage of at least 10 volume percent less than the shrinkage of a hydroquinone polyester when both are subjected to the same amount of irradiation per unit volume.
- 18. The method of Claim 1, wherein the organic polymer undergoes a yellowing of at least 50 percent less than the yellowing of a hydroquinone polyester when both are subjected to the same amount of irradiation per unit volume.
 - 19. A holographic pattern manufactured by the method of Claim 1.
 - 20. An article manufactured by the method of Claim 1.
 - 21. A data storage device manufactured by the method of Claim 1.
- 22. A photonic communication device manufactured by the method of Claim 1.
 - 23. A waveguide manufactured by the method of Claim 1.